

## Determine what type of investor you are and match a plan to your goals.

The type of plan that best suits you depends on the type of investor you are—your Personal Investor Profile. Are you an aggressive investor, a conservative investor or somewhere in between? We've designed this questionnaire to help you find out quickly and easily. By answering these questions, you can combine 1) the time period you want to consider for investing, your "time horizon," and 2) how you feel about the risks of investing, your "risk tolerance," to define your investor profile.

Once you decide which Personal Investor Profile best describes you, it's easy to choose the best way to allocate your assets and diversify your portfolio to meet your goals.

The questionnaire assumes that the money you plan to invest will be used for a long-term purpose such as retirement or a single purpose such as saving for a home. Read it over and check the answers that apply to you. Then follow the instructions to select an asset allocation plan.

**1** I plan to begin withdrawing money from my investments for major needs within:

Less than 3 years .....	1 point
3-5 years .....	3 points
6-10 years .....	7 points
11 years or more .....	10 points
	_____ points

**2** Once I begin withdrawing funds from my investments, I plan to spend all of the funds within:

Less than 2 years .....	0 points
2-5 years .....	1 point
6-10 years .....	4 points
11 years or more .....	8 points
	_____ points

**SUBTOTAL A**

Add your points from questions 1 and 2 and enter here \_\_\_\_\_

If your score is *less than 3*, STOP HERE.

A score of less than 3 indicates a very short investment time horizon. For such a short time horizon, a relatively low-risk portfolio of 40% short-term (average maturity of five years or less) bonds or bond funds and 60% cash is recommended, as stock investments may be significantly more volatile in the short term. Go directly to the short-term asset allocation chart.

If your score is *greater than 3*, please continue.

# FIG. 1A

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- 3** I would describe my knowledge of investments as:
- |                |              |
|----------------|--------------|
| None.....      | 0 points     |
| Limited.....   | 2 points     |
| Good .....     | 4 points     |
| Extensive..... | 6 points     |
|                | _____ points |

- 4** When I decide how to invest my money, I am:
- |  |              |
|--|--------------|
| Most concerned about the possibility of my investment losing value.....                | 0 points     |
| Equally concerned about the possibility of my investment losing or gaining value ..... | 4 points     |
| Most concerned about the possibility of my investment gaining value .....              | 8 points     |
|  | _____ points |

- 5** Review the following list and select the investments you currently own or have owned in the past. Then choose the one with the highest number of points and enter that number.
- (Example: You now own stock funds and have in the past purchased international securities. Your score would be 8.)*
- |   |              |
|---|--------------|
| Money market funds or cash equivalents.....               | 0 points     |
| Bonds and/or bond funds.....                              | 3 points     |
| Stocks and/or stock funds .....                           | 6 points     |
| International securities and/or international funds ..... | 8 points     |
| (Maximum possible score = 8)                              | _____ points |

- 6** Consider this scenario:  
Imagine that over the past three months, the overall stock market lost 25% of its value. An individual stock investment you own also lost 25% of its value. What would you do?
- I would:
- |                              |              |
|------------------------------|--------------|
| Sell all of my shares.....   | 0 points     |
| Sell some of my shares ..... | 2 points     |
| Do nothing .....             | 5 points     |
| Buy more shares .....        | 8 points     |
|                              | _____ points |

- 7** Review the following chart:  
We've outlined the most likely best and worst case annual returns of five hypothetical investment plans. Which range of possible outcomes is most acceptable to you or best suits your investment philosophy?  
*(The figures are hypothetical and do not represent the performance of any particular investment.)*

**FIG. 1B**

Investment plans	Avg. annualized return (1 year)	Best case scenario (1 year)	Worst case scenario (1 year)	Points
Investment Plan A	7.2%	16.3%	-5.6%	0 points
Investment Plan B	9.0%	25.0%	-12.1%	3 points
Investment Plan C	10.4%	33.6%	-18.2%	6 points
Investment Plan D	11.7%	42.8%	-24.0%	8 points
Investment Plan E	12.5%	50.0%	-28.2%	10 points

\_\_\_\_\_ points

► **SUBTOTAL B**

Add your points for questions 3 through 7 and enter here

\_\_\_\_\_

Now you're ready to determine your Personal Investor Profile and choose a corresponding asset allocation plan.

**1**

Enter SUBTOTAL A here \_\_\_\_\_

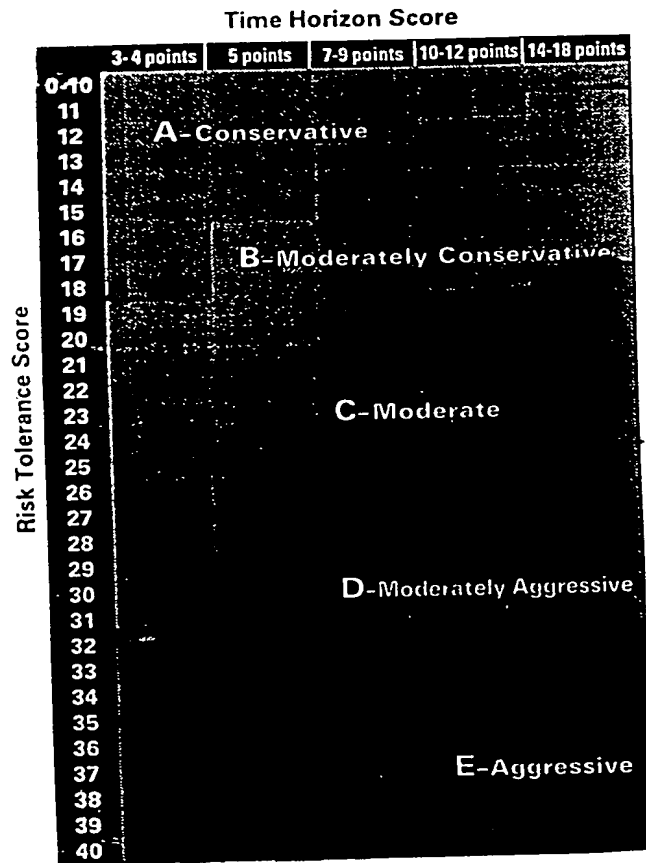
This number represents your TIME HORIZON score.

Enter SUBTOTAL B here \_\_\_\_\_

This number represents your RISK TOLERANCE score.

**2**

Plot your TIME HORIZON score and your RISK TOLERANCE score on the Personal Investor Profile chart and locate their intersection point. Then find the corresponding asset allocation plan on the following page.



**FIG. 1C**

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Now find your corresponding asset allocation plan.

The following allocation plans match the Personal Investor Profiles on the previous page—A through E. Now that you know your own profile, go to the corresponding chart below to determine how to allocate your assets. Then go to Step 2 to choose a solution that suits your plan.

### Short term

*For investors who want current income and a high degree of stability in their investments. Given a short-term time horizon, it is prudent to invest in asset classes that experience relatively minor price fluctuations, such as short-term fixed-income funds and money market funds.*

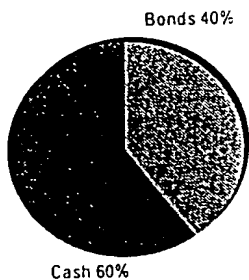


FIG. 2

### A Conservative

Average annual return (1970–1996): 9.44%  
Best year: 21.81%  
Worst year: -1.25%

*For investors who want current income and stability and aren't concerned about increasing the value of their investments.*

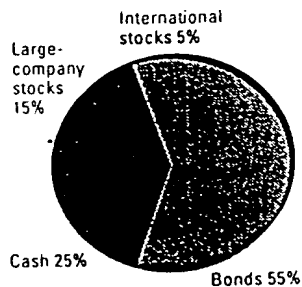


FIG. 2A

### B Moderately Conservative

Average annual return (1970–1996): 10.65%  
Best year: 25.57%  
Worst year: -6.54%

*For investors who want current income and stability, with some increase in the value of their investments.*

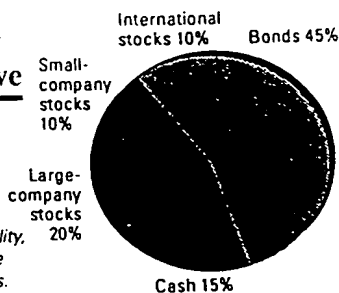


FIG. 2B

FIG. 2C

**C Moderate**

Average annual return  
(1970-1996): 11.55%  
Best year: 29.76%  
Worst year: -12.95%

*For long-term investors who don't need current income and want reasonable but stable growth. Some fluctuations are tolerable, but they want less risk than the overall stock market.*

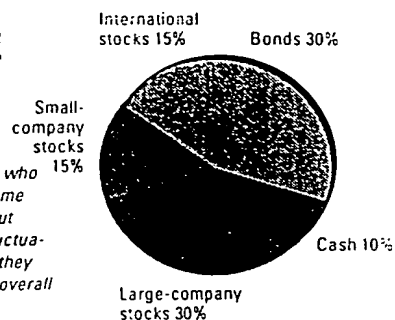


FIG. 2D

**D Moderately Aggressive**

Average annual return  
(1970-1996): 12.41%  
Best year: 36.63%  
Worst year: -19.14%

*For long-term investors who want good growth and don't need current income. A fair amount of risk is acceptable, but not as much as if they invested exclusively in stocks.*

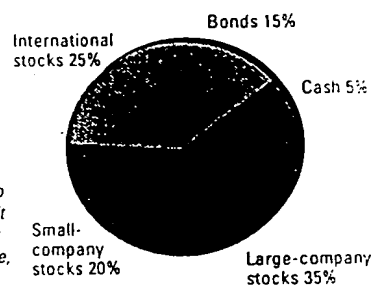
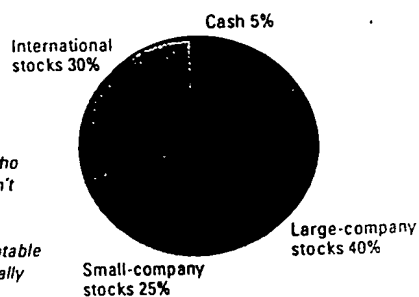


FIG. 2E

**E Aggressive**

Average annual return  
(1970-1996): 12.89%  
Best year: 42.39%  
Worst year: -23.82%

*For long-term investors who want high growth and don't need current income. Substantial year-to-year volatility in value is acceptable in exchange for a potentially high long-term return.*



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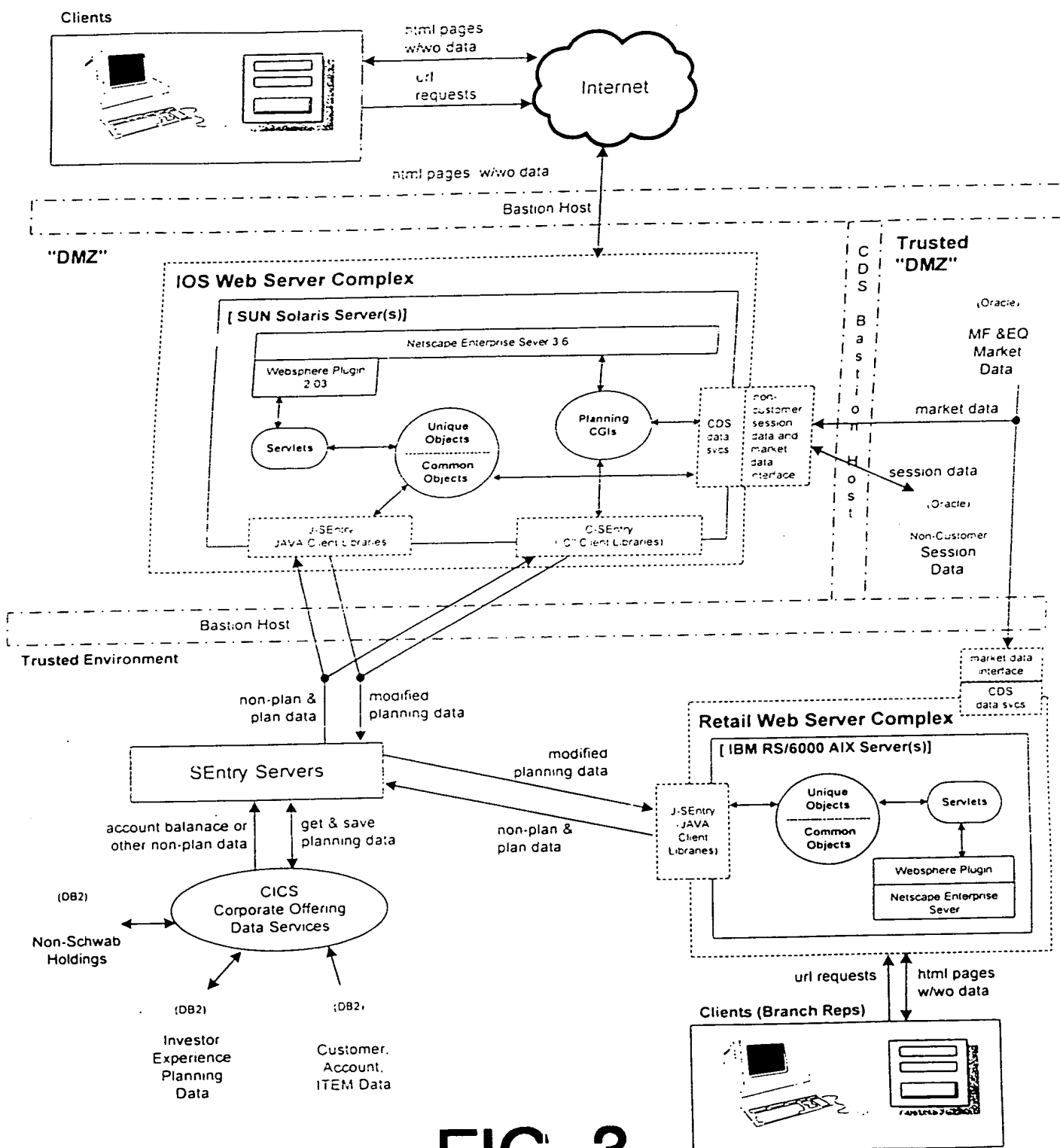


FIG. 3

### 1.13 HIGH-LEVEL APPLICATION ENVIRONMENT

#### Portfolio Optimizer High-Level Application Environment

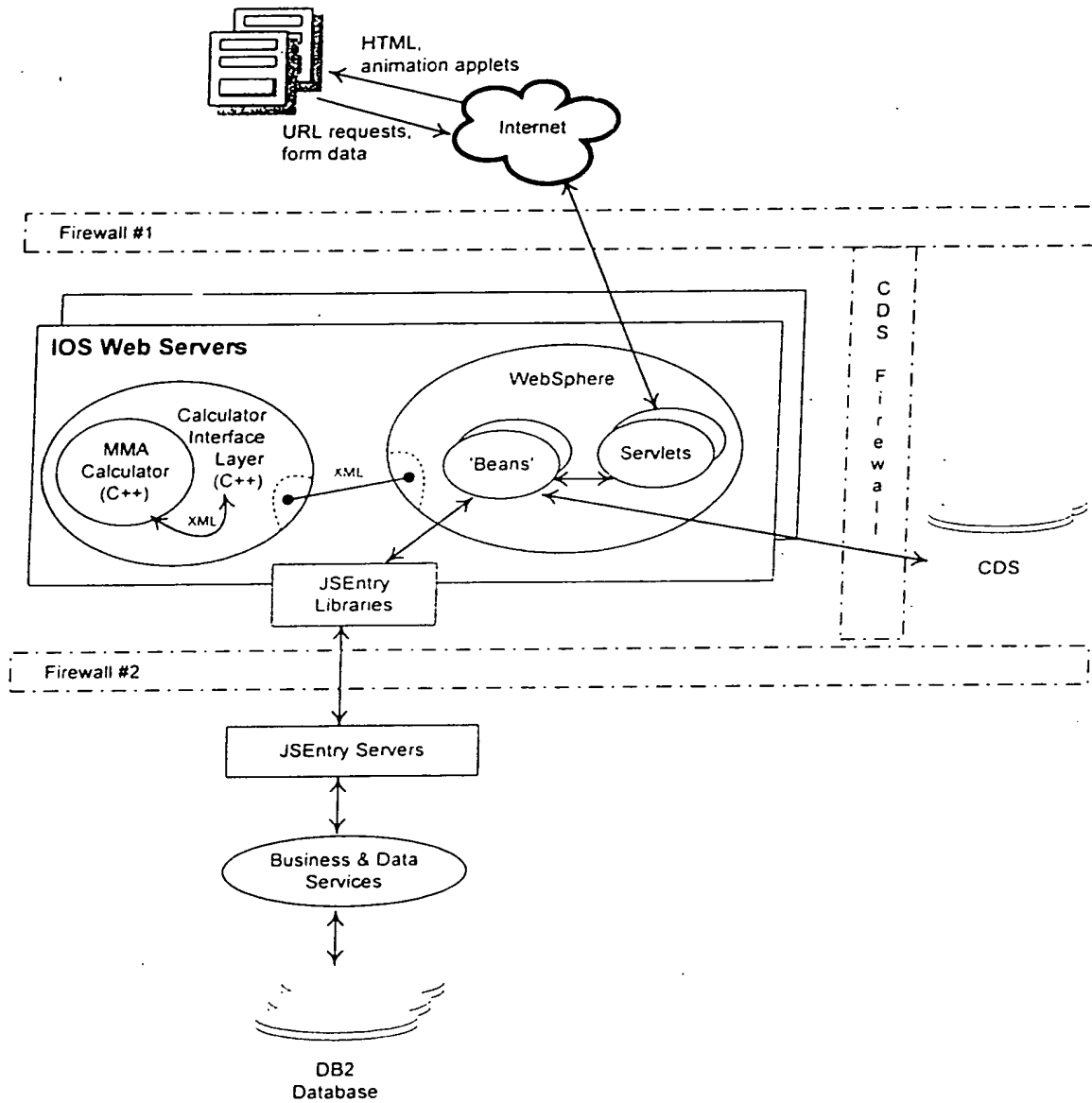


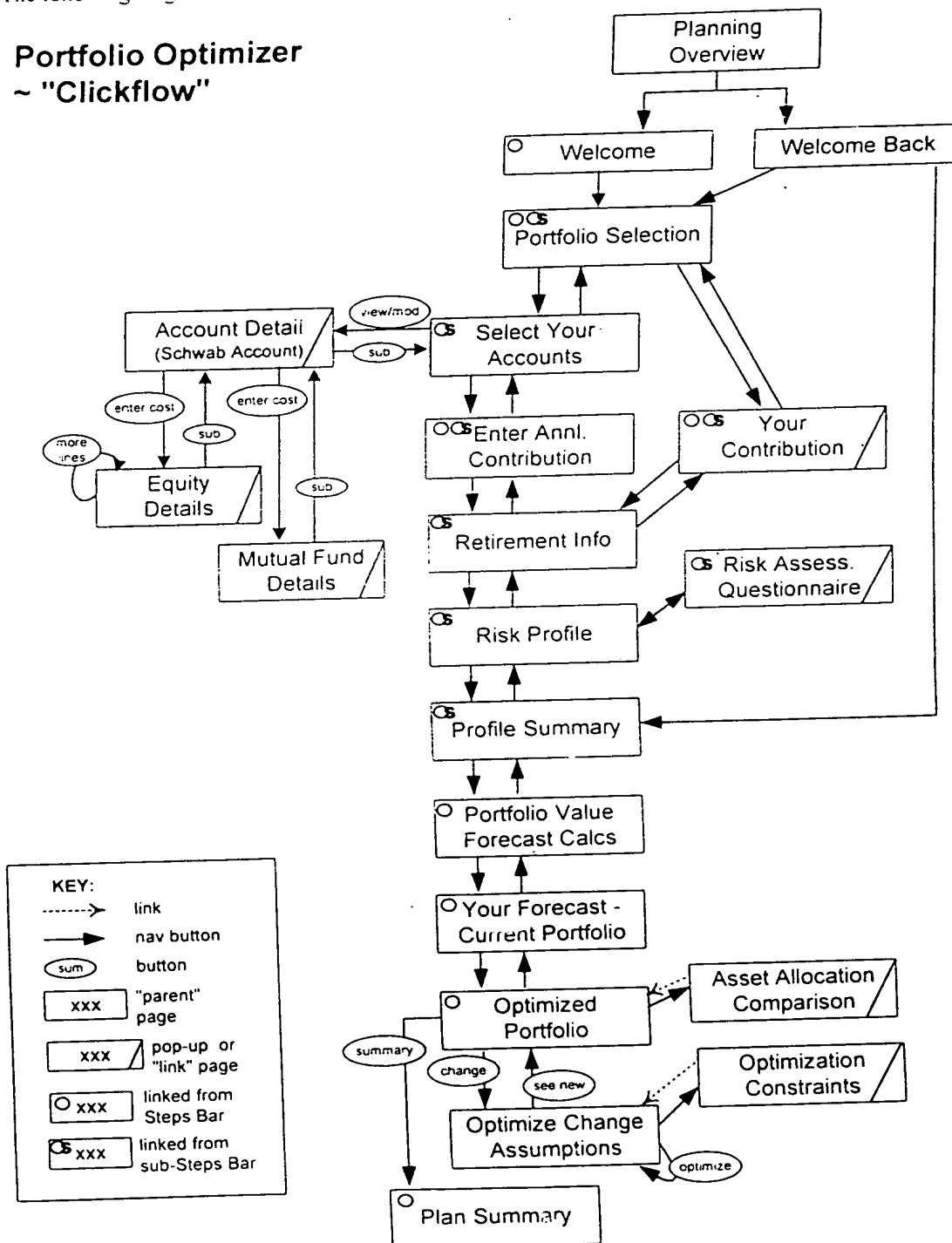
FIG. 4

# FIG. 5

## 3.3 PAGE "CLICK FLOW" DIAGRAM

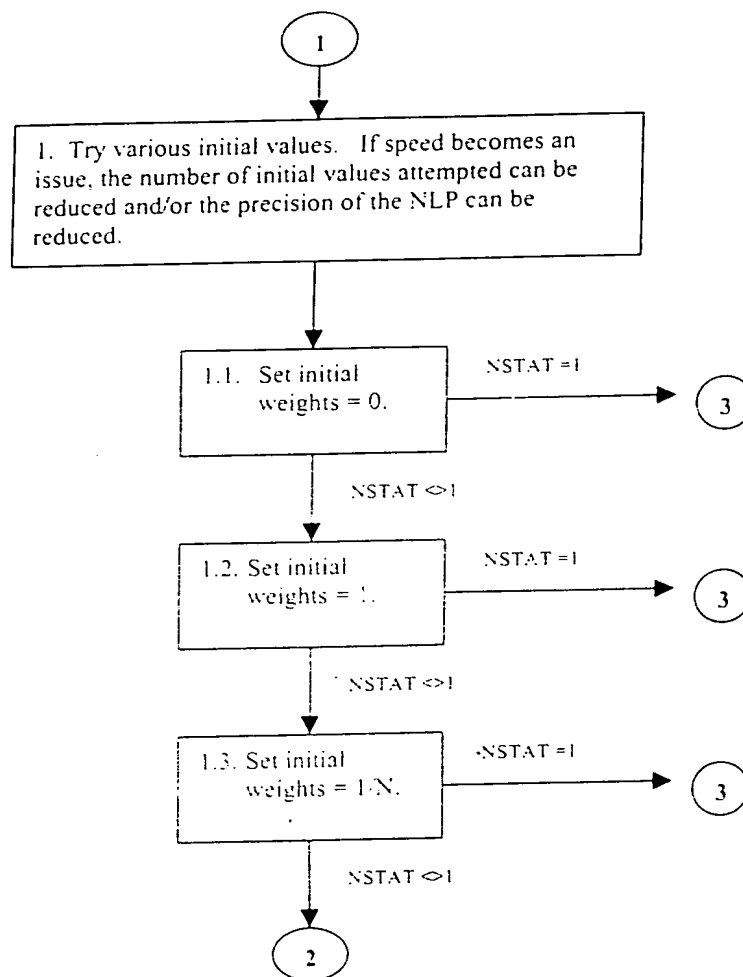
The following diagram shows the click flow for all pages used in Optimizer.

### Portfolio Optimizer ~ "Clickflow"





Phase 1



**FIG. 6**

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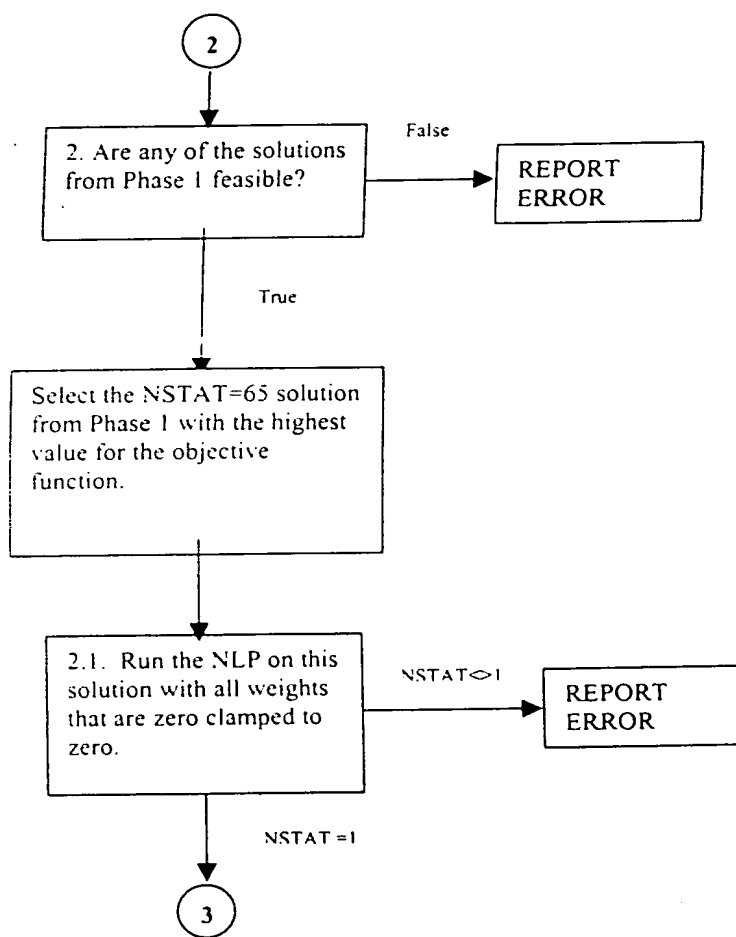


FIG. 7

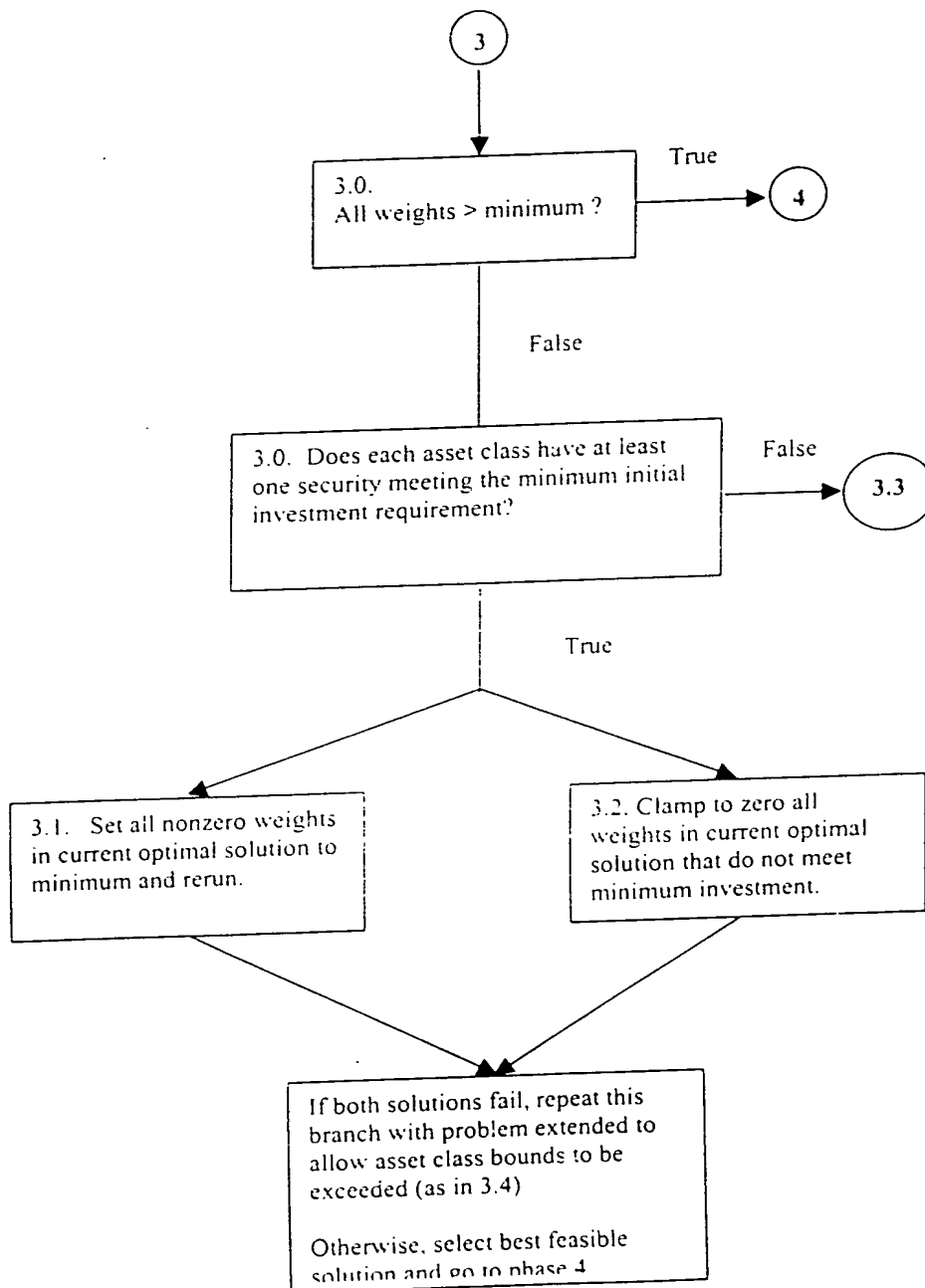
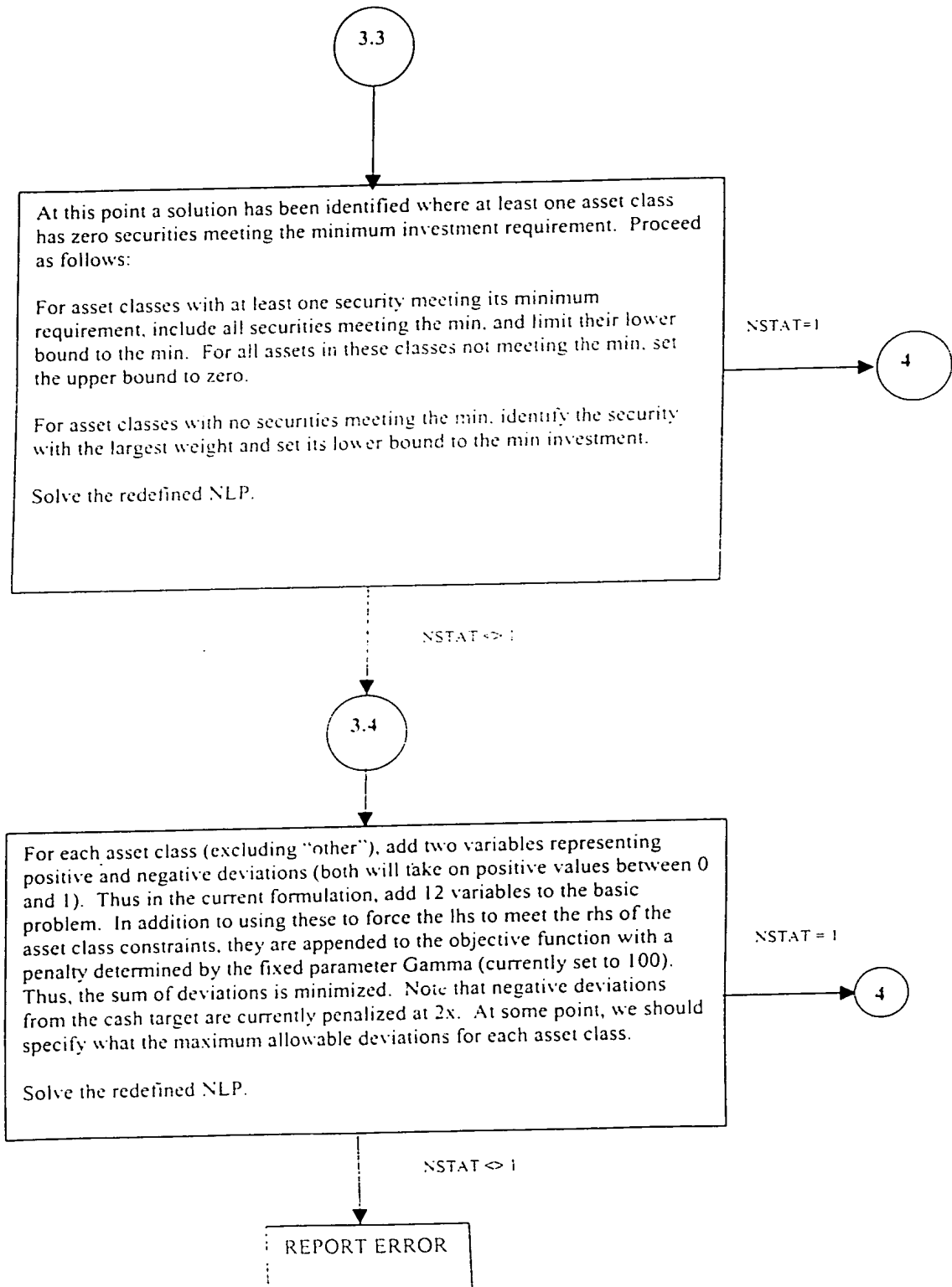


FIG. 8A

# FIG. 8B



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Phase 4



At this point an optimal solution has been identified from the NLP. This cleanup phase will make the transformations necessary to link the results with the final user interface.

REPORT ERROR

There are three identifiable cases to be addressed where a solution can not be reported to the user:

- 1) The NLP can not solve due to the lack of funds—it is possible, a priori, to determine when there is not a feasible solution due to the fund minimums and how the discretionary funds are allocated across the tax/non-tax accounts. A reporting mechanism should be designed to account for this case. An alternative to consider is that for these cases we recommend an asset allocation fund appropriate for the user's risk tolerance, such as the Schwab MarketTrack funds.
- 2) The NLP does not indicate a solution in any phase before the minimum investment criteria are considered—we do not anticipate that this will occur, given the robustness of the iterative solution method, but it cannot be ruled out. Thus an error reporting mechanism must provide for the case where the NLP just does not work.
- 3) There are situations in phase 3 where it is possible for the NLP to fail. Although the flexibility of the 3.4 technique should preclude most all of these, an error is still possible. We need an error reporting mechanism for this possibility. In these cases, however, we may be able to modify the solution approach to resolve the error.

The error reporting system will include a log file where the step at which the solution failed is identified. This will help us identify errors where a change to the algorithm can be made to avoid similar errors in the future.

**FIG. 9**

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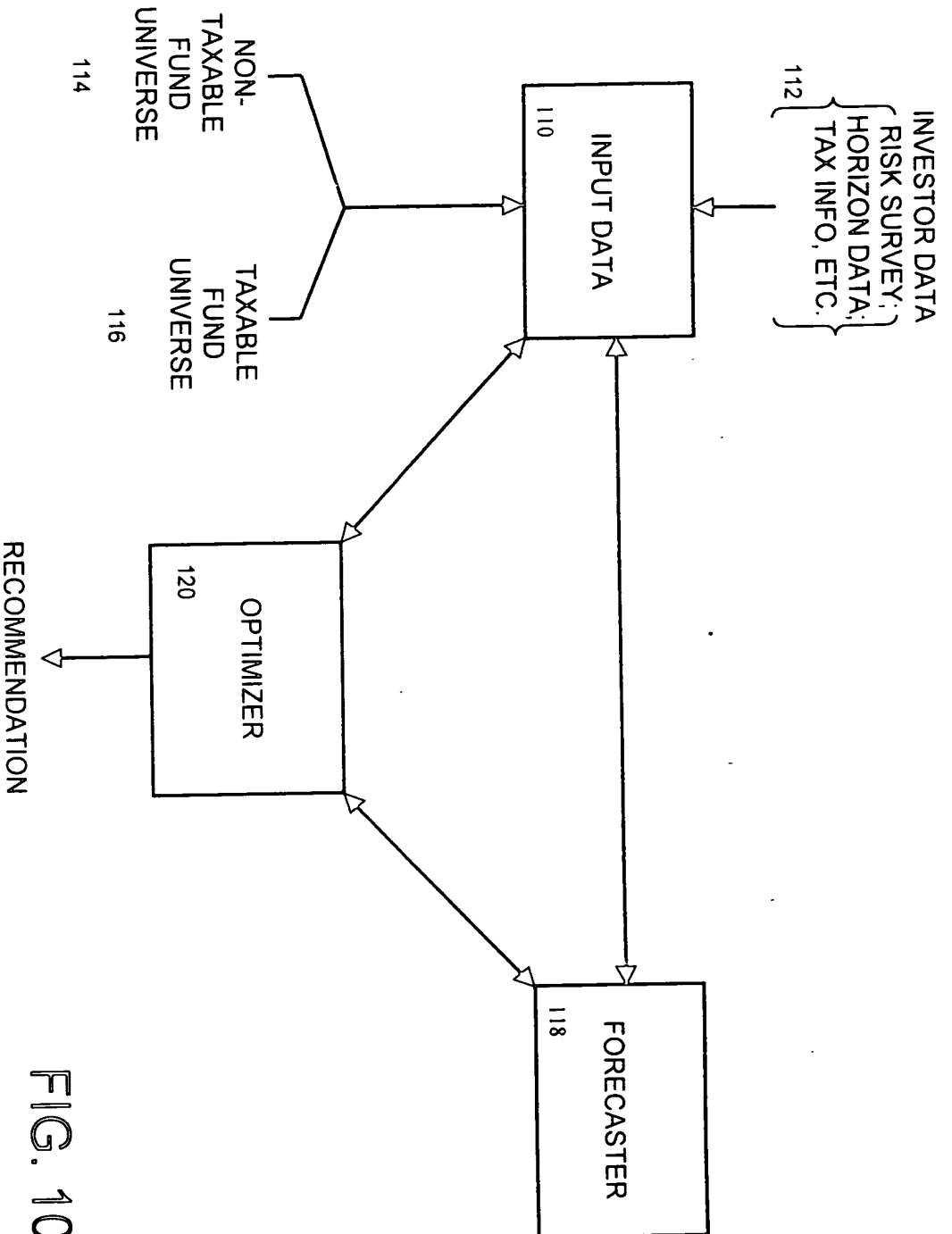


FIG. 10